

What is claimed is:

1. A circuit for controlling a discharge amount of a hydraulic pump, comprising:
a variable displacement hydraulic pump connected with an engine;
an actuator connected with the hydraulic pump;

5 a center bypass type directional switching valve installed in a flow path
between the hydraulic pump and the actuator for controlling a start, stop and
directional switching of the actuator during a switching operation;

a pilot signal generating means installed in a down stream side of a center
bypass path of the directional switching valve for controlling a discharge amount of
10 the hydraulic pump; and

a discharge amount adjusting valve which is installed in a supply path of the
actuator of the center bypass type directional switching valve for controlling a
discharge amount of hydraulic fluid supplied to the actuator and has an opening
portion opened and closed based on a difference pressure between an upper
15 stream side pressure and a down stream side pressure of the supply path of the
actuator and an elastic force of a valve spring.

2. The circuit of claim 1, wherein said discharge amount adjusting valve
includes a variable orifice which is capable of generating a difference pressure
20 between an upper stream side pressure and a down stream side pressure of the
supply path of the actuator and has an opening portion controlled by an external
signal.

3. The circuit of either claim 1 or claim 2, wherein said discharge amount
25 adjusting valve is installed in the interior of a spool of the center bypass type
directional switching valve.

4. The circuit of either claim 1 or claim 2, wherein said discharge amount adjusting valve is installed outside the spool of the center bypass type directional switching valve.

5. The circuit of claim 1, wherein said pilot signal generating means is a pressure generating apparatus formed of an orifice and a low pressure relief valve for discharging pilot pressure in an upper stream side of the pilot signal generating means and controlling the discharge amount of the variable displacement hydraulic pump based on a negative system.

6. The circuit of claim 1, wherein said pilot signal generating means includes:
a pilot pump that discharges pilot pressure;
a remote control valve adapted to control pilot pressure applied to the center bypass type switching valve; and
a shuttle valve, which has an inlet portion connected with the center bypass type switching valve and an outlet portion connected with the hydraulic pump,
wherein the variable displacement hydraulic pump is controlled based on a positive discharge amount control method, so that the discharge amount of the variable displacement hydraulic pump is controlled in proportion to pilot pressure applied to the center bypass type switching valve.

7. The circuit of claim 6, wherein said discharge amount adjusting valve installed in the supply path of the actuator is installed inside the spool of the center bypass type directional switching valve.

8. The circuit of claim 6, wherein said discharge amount adjusting valve installed in the supply path of the actuator is installed outside the spool of the center

bypass type directional switching valve.